update on D0 reco. using micro-vertex code

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datasets

- mix D0 sample :

  - 1 D0 embedded in Cu+Cu event, 280 files with 400 events

  - $|z_{vertex}| < 30$ cm (20 cm in the analysis)

  - defaults cuts in macro (applied to positive and negative tracks):

  - $NT_{pc} > 15$

  - $|\eta|$ in SSD acceptance, ie $|\eta| < 1.2$

  - $pT > 0.1$ GeV/c

  - Decay length < 700 µm

- real data : Cu+Cu@200 GeV Min bias (P07ic)

  - look only for a fraction of these files

  - $|z_{vertex}| < 20$ cm in the analysis

some issues

➡ Background rotation calculation

➡ Cut on the number of tracks per event

➡ Cut on D0 daughters momentum

➡ NSigma for dEdx values ?

Background rotation

- for each (positive,negative) association, rotation of π of the positive daughter

- recalculate the corresponding mass

➡ it leads to a not "perfect background", then the substraction of true-fake D0 is over-estimated

mix sample
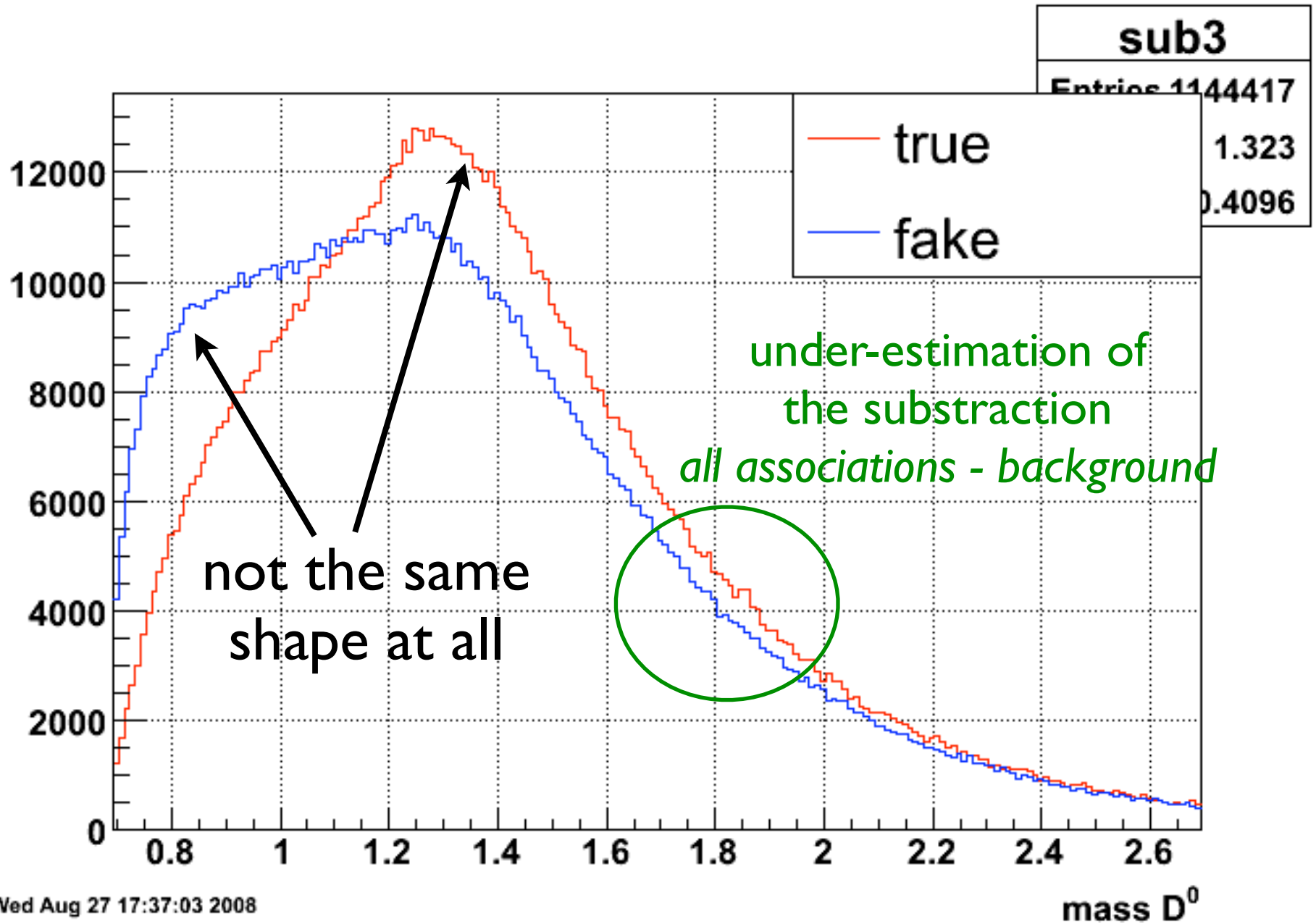
Modification

- try another value than π : same results

- try random rotation in 2π for both daughters : same results

- rotation of π + TMath::Gaussian(π,0.25)
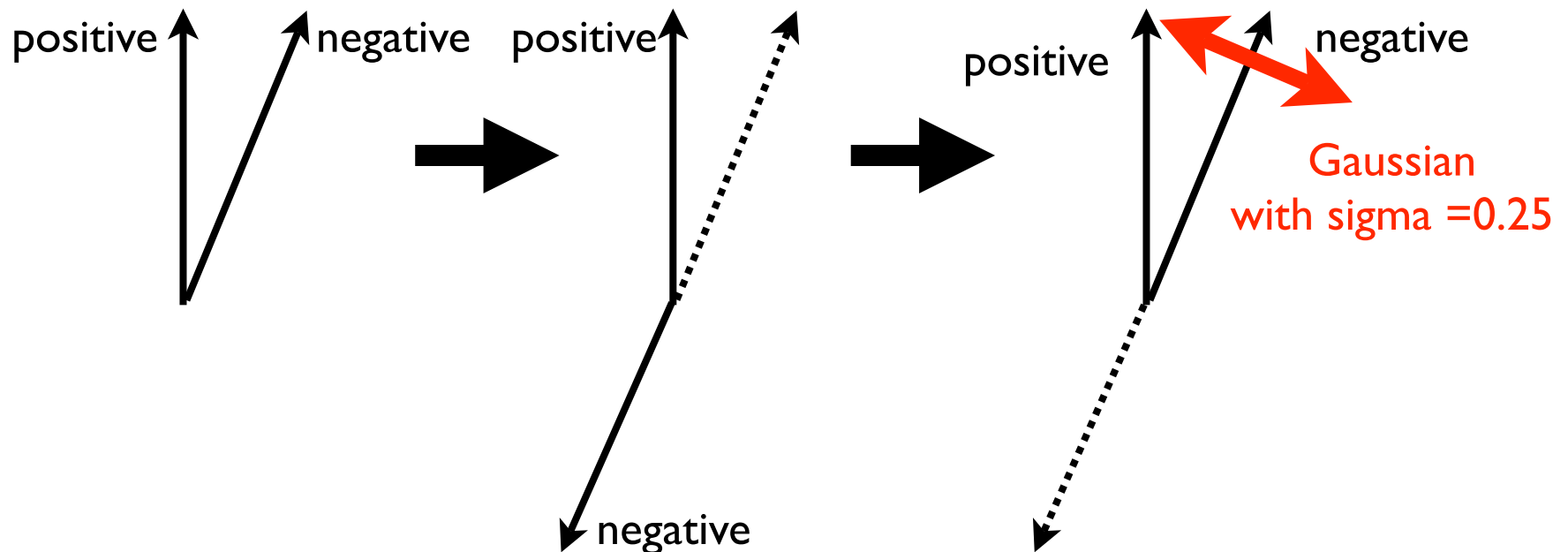
- In the following plots, we tried 3 cuts : number of TPC hits, number of silicon hits ,number of tracks per event
(done with a sample of the files available)

Fixed rotation

all associations
background
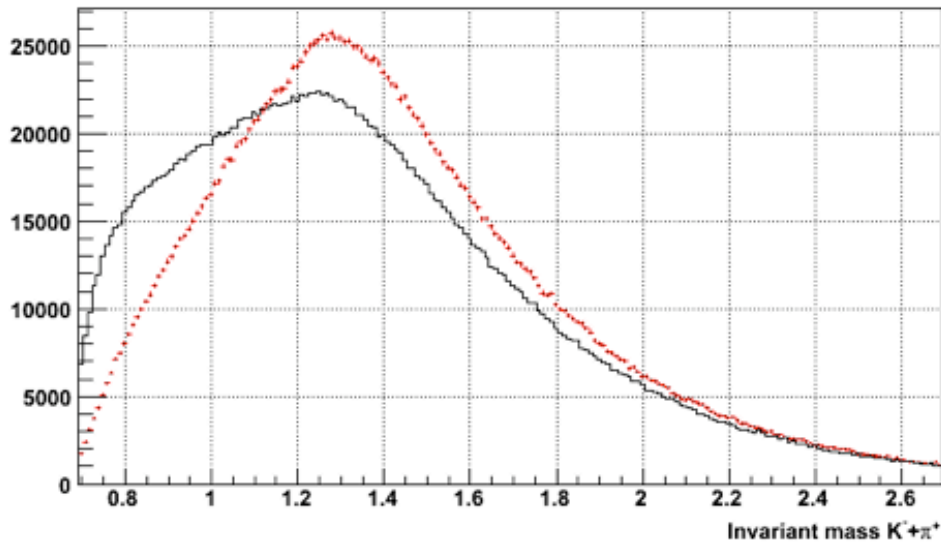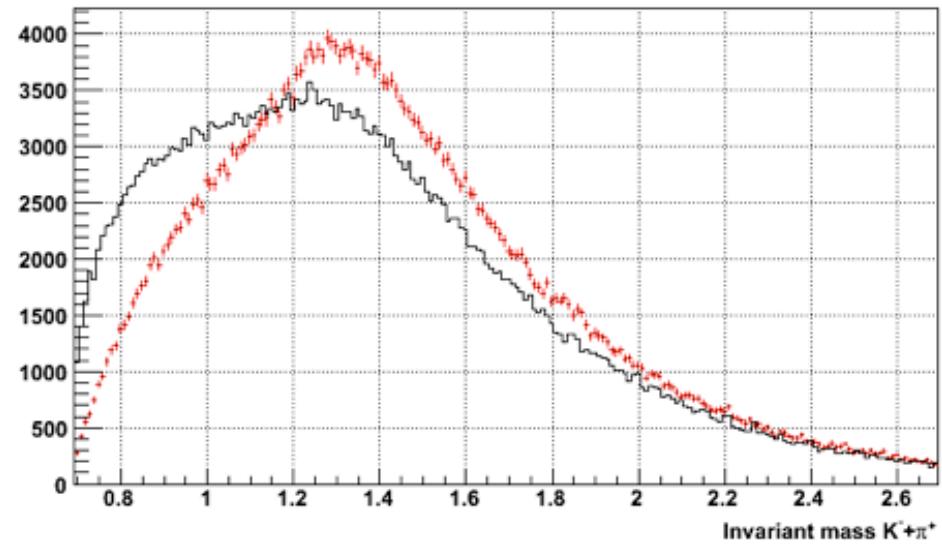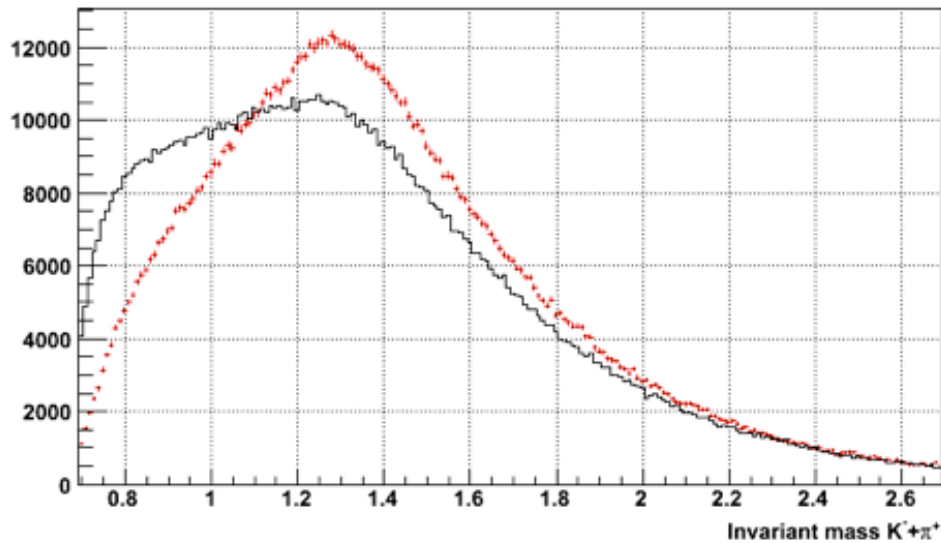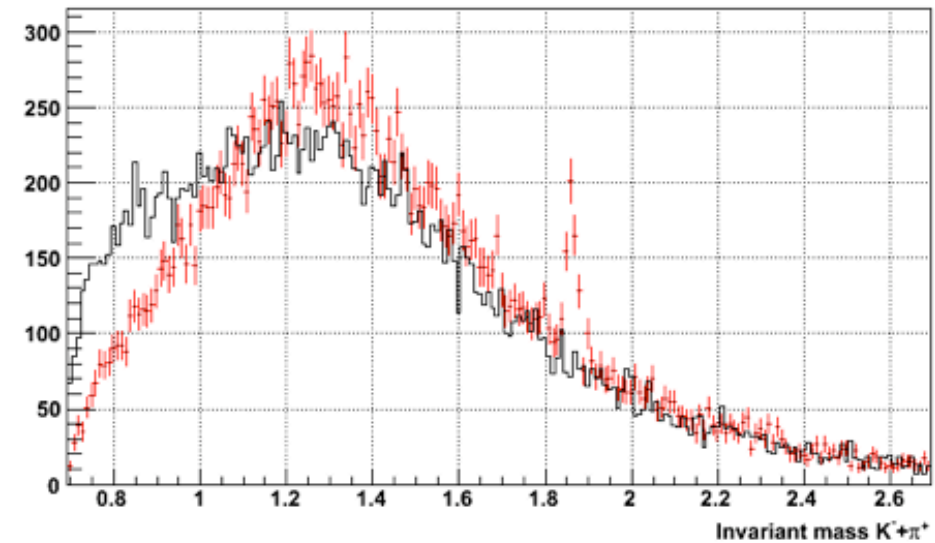
Fixed rotation (zoom)

all associations
background

The background rotation does not fit well for associations far from the expected D0 mass
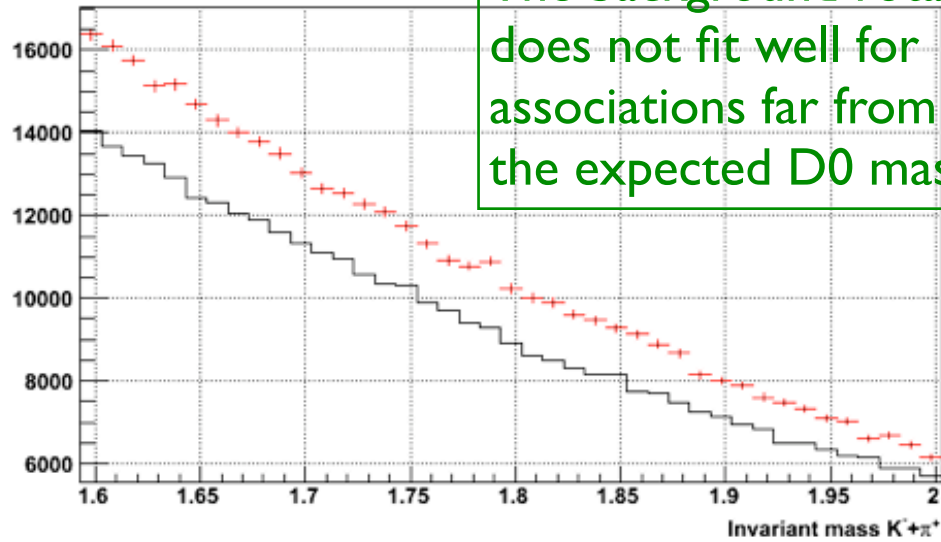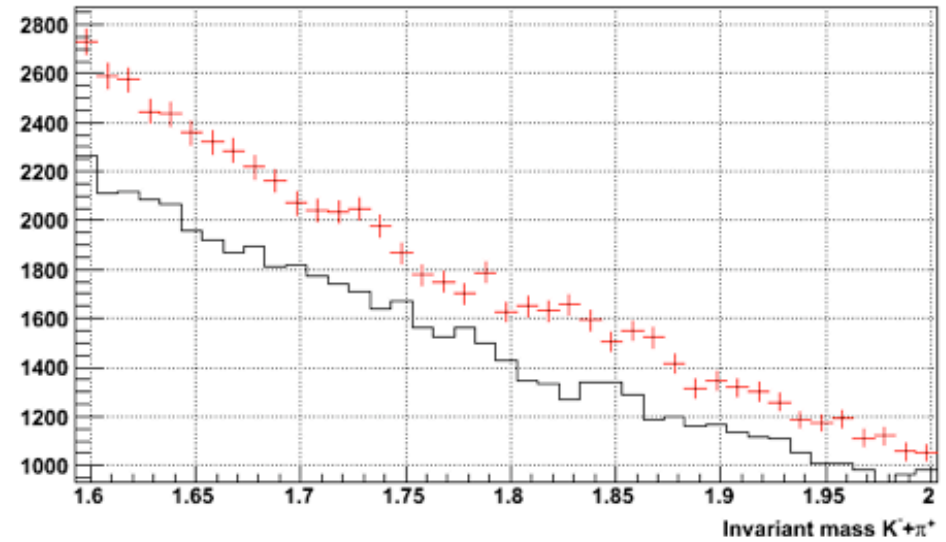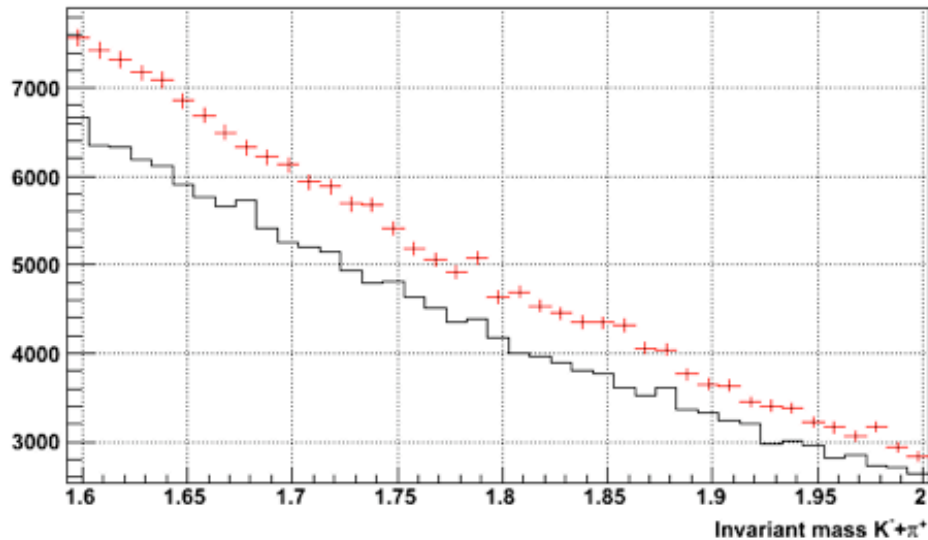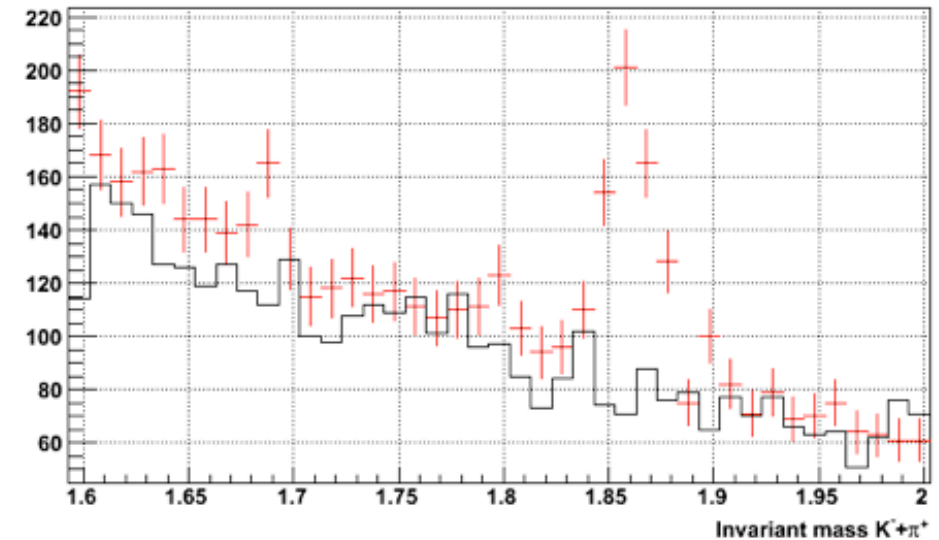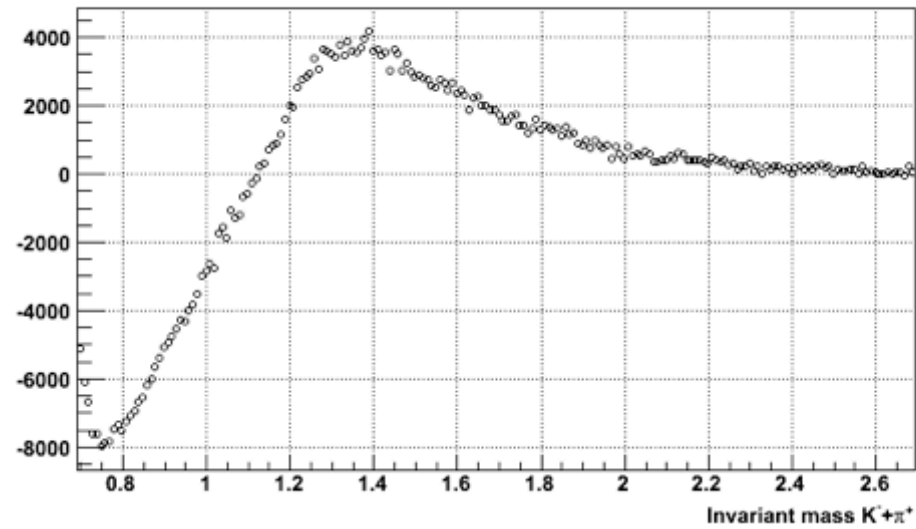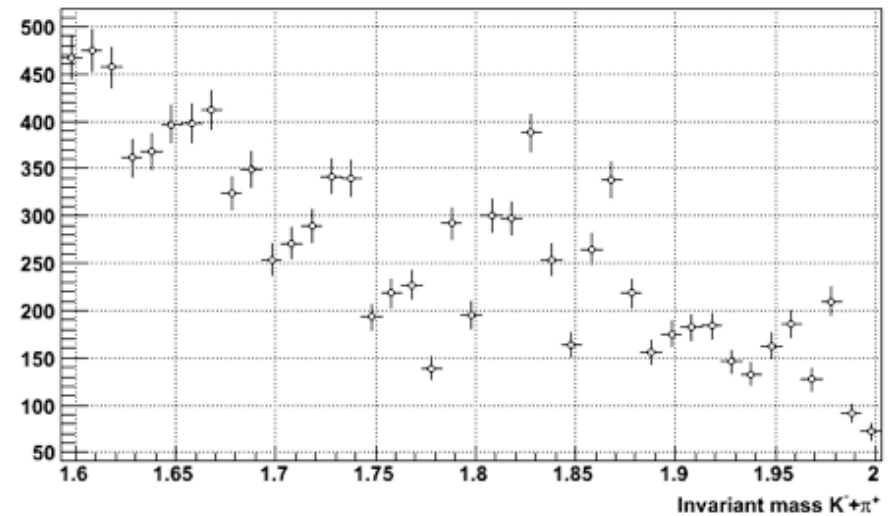
Fixed rotation : substraction

no cuts

TPC hits > 40
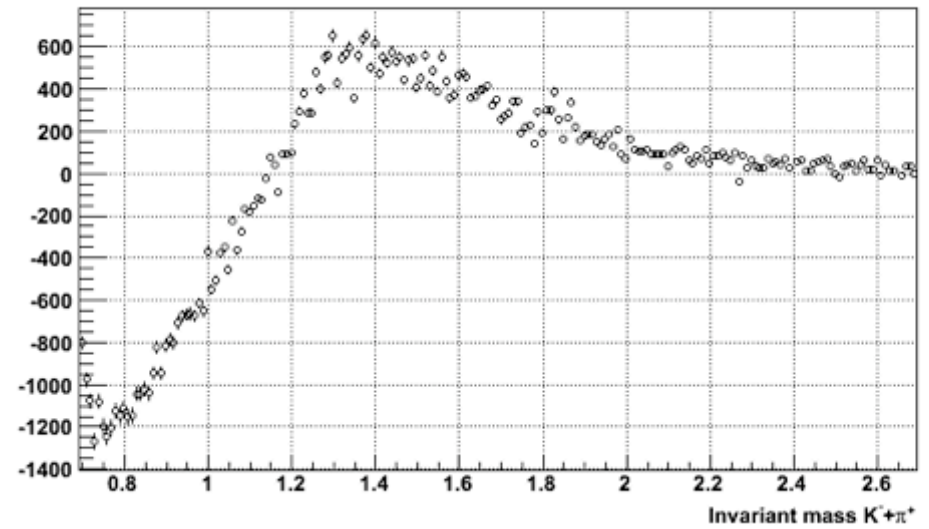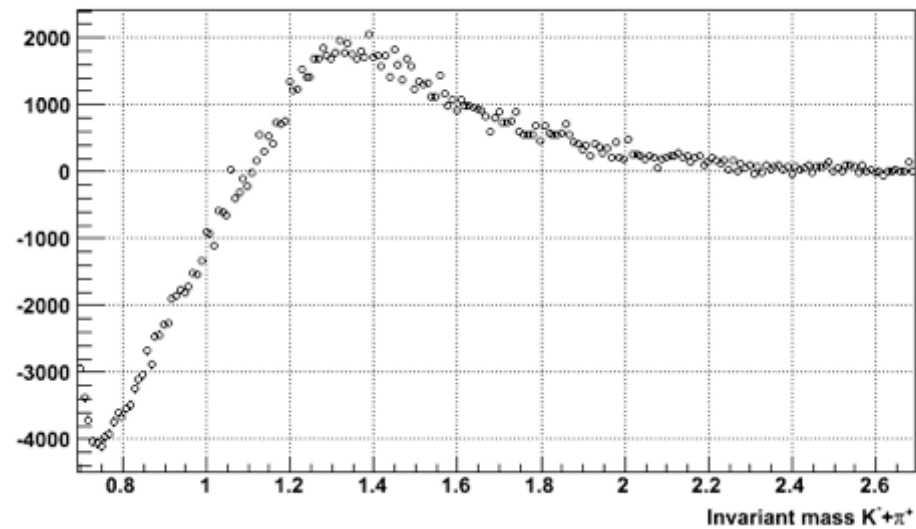
Invariant mass K⁻+π⁺
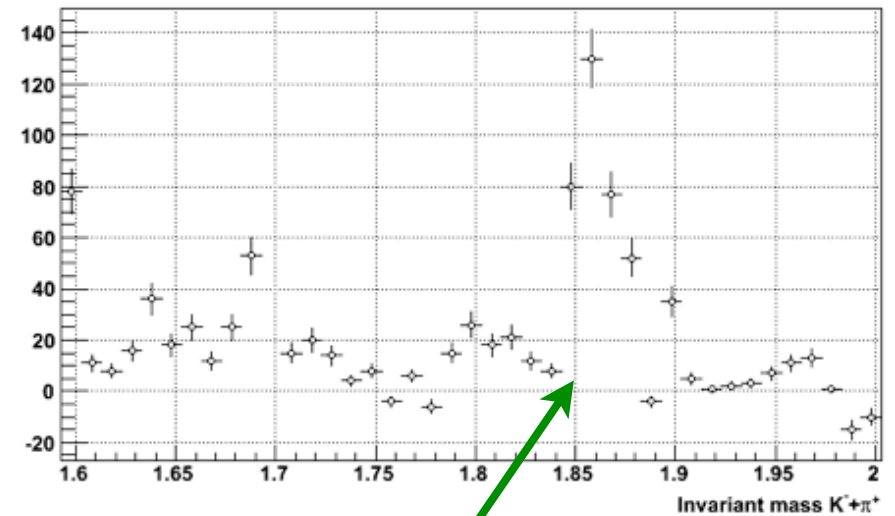
Si > 1

NTracks < 50
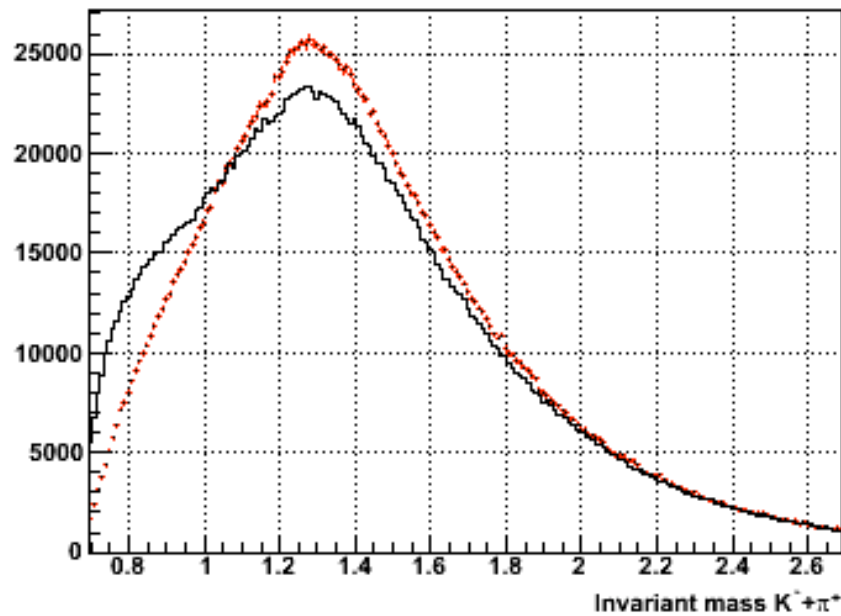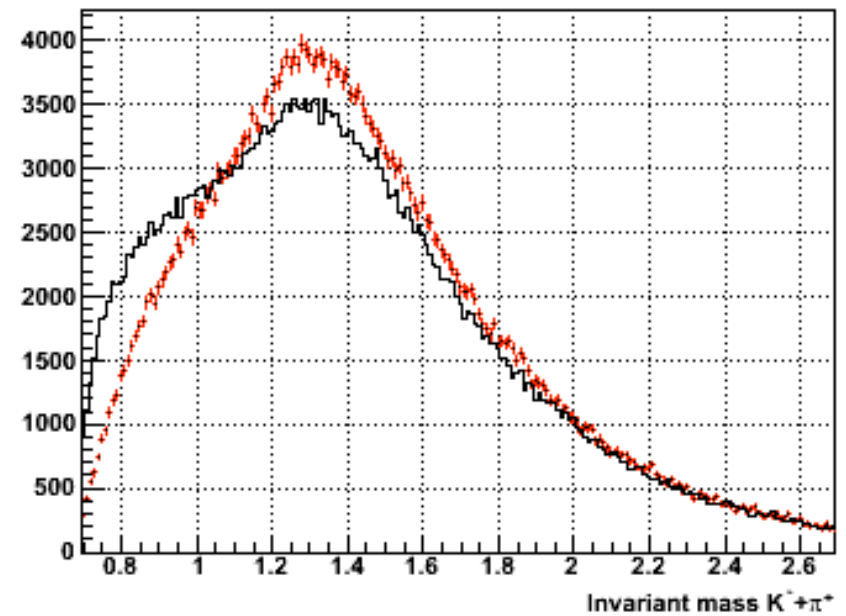
Invariant mass K⁻+π⁺
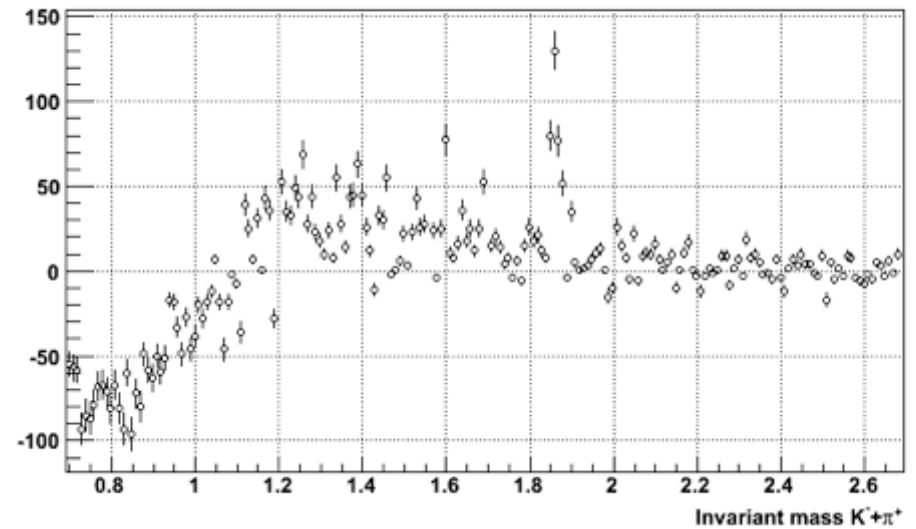
Fixed rotation : substraction(zoom)
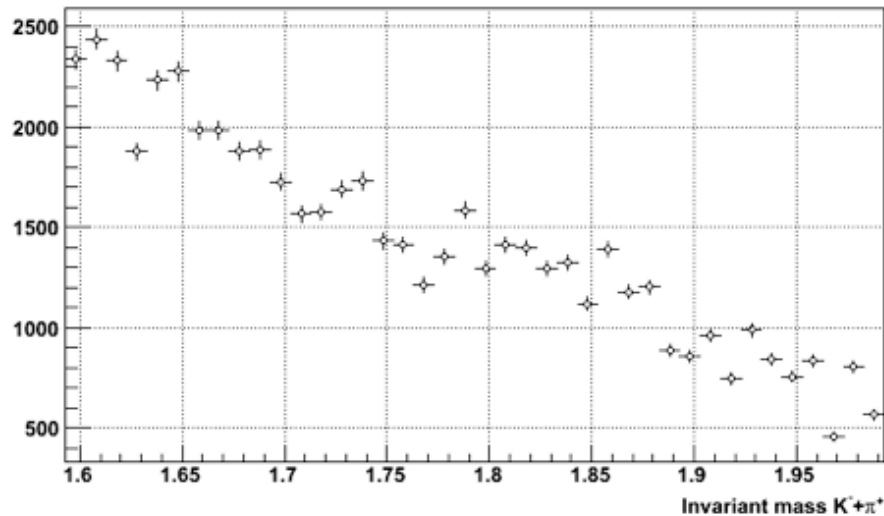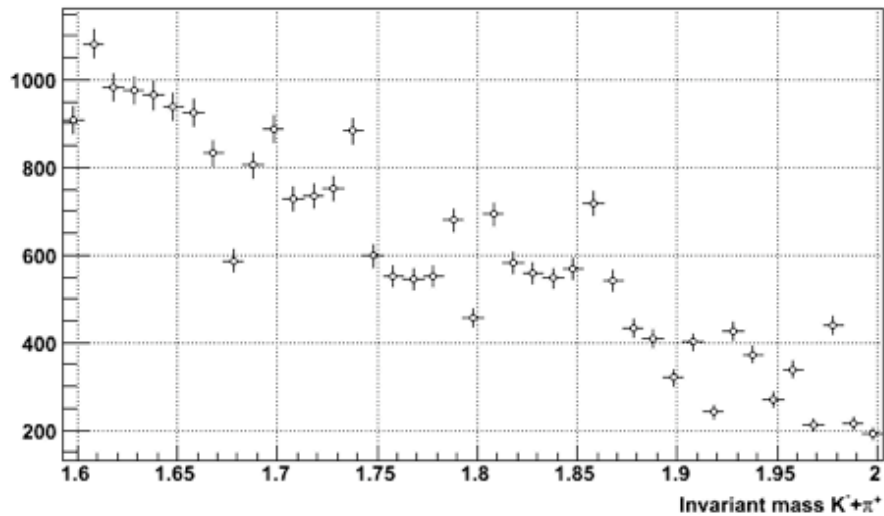
it seems to work better with the cut on the number of tracks per event

random rotation

random rotation : substraction

gaussian rotation

13
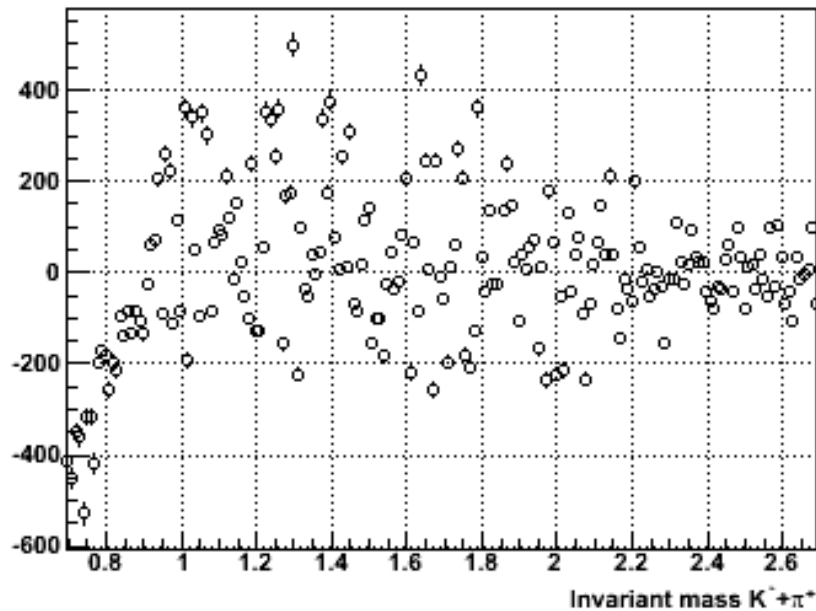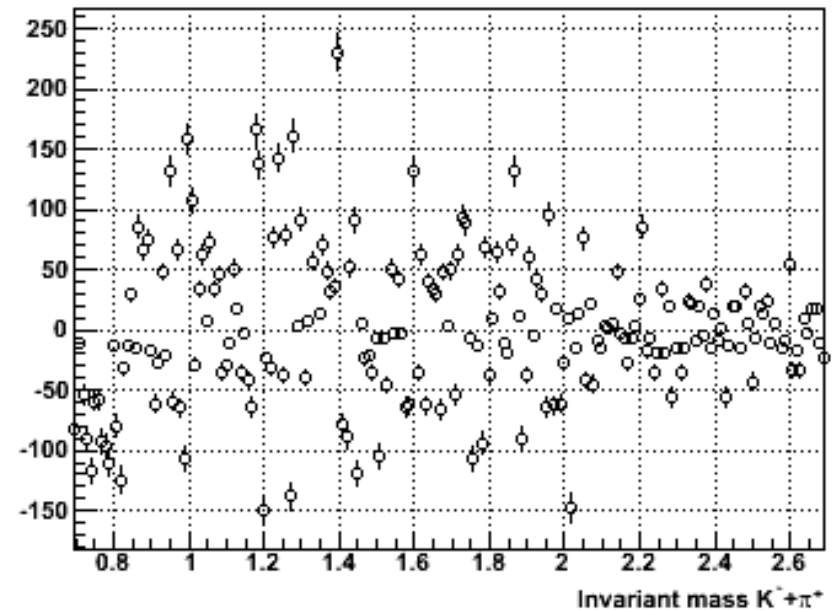
gaussian rotation : substraction
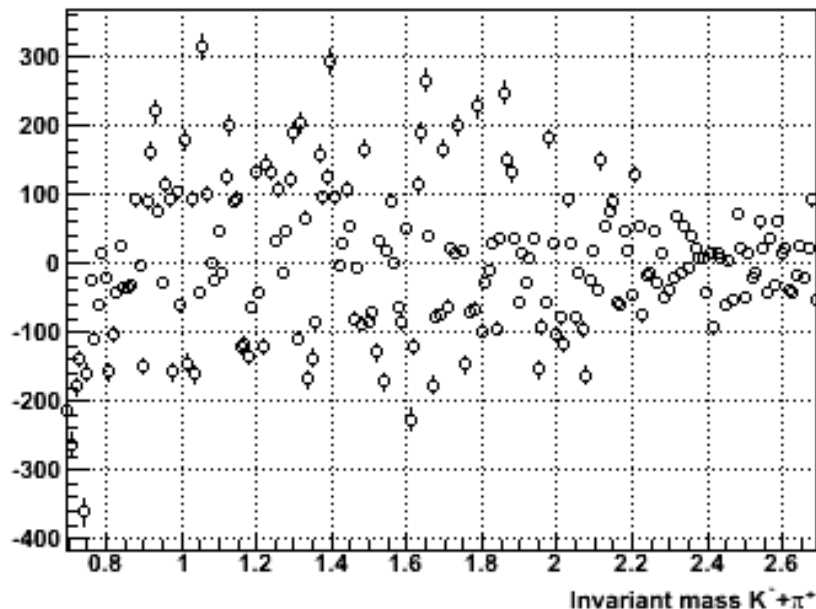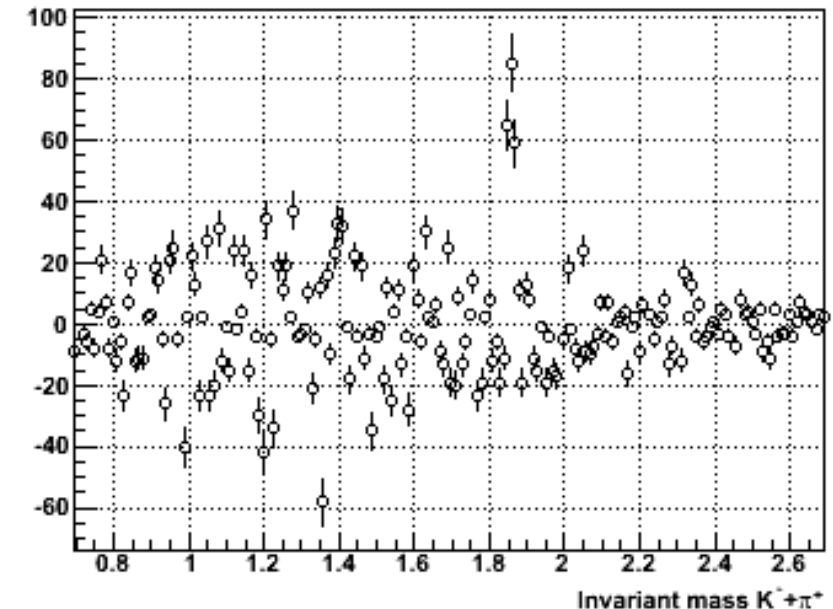
gaussian rotation (all files)
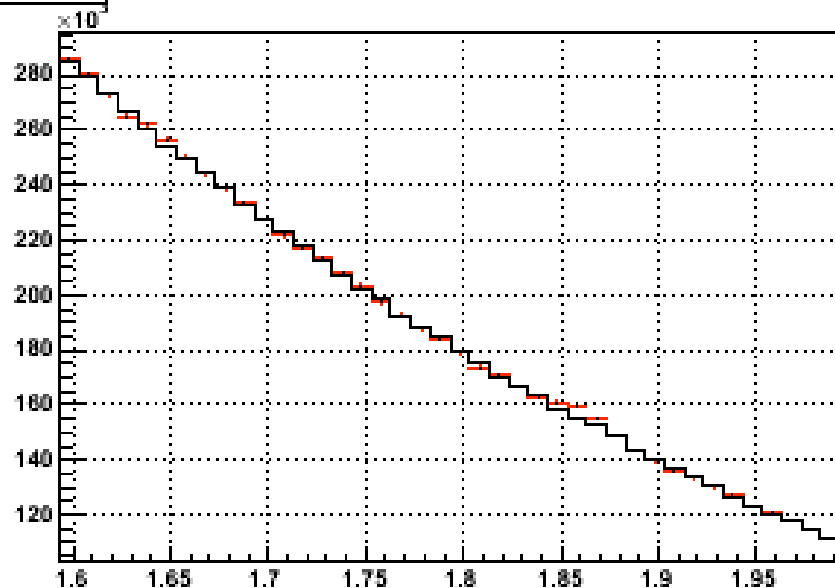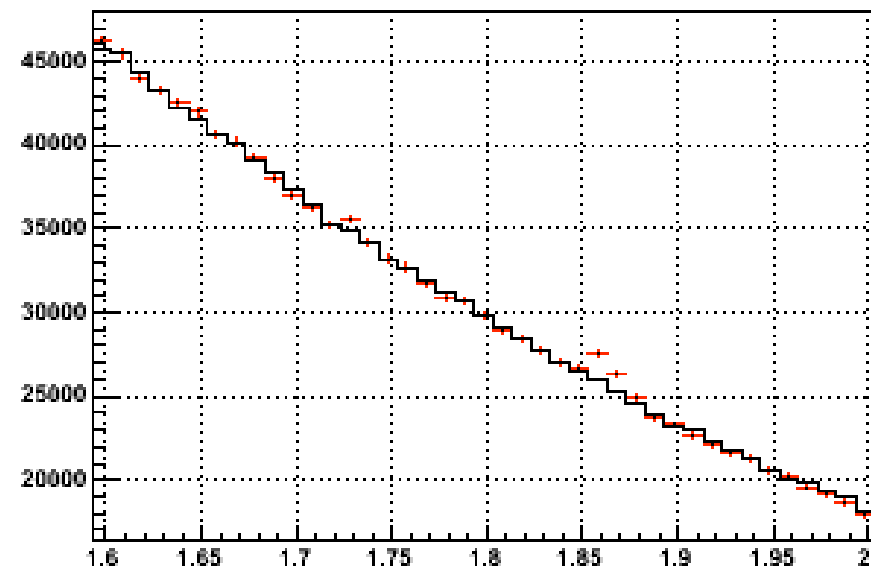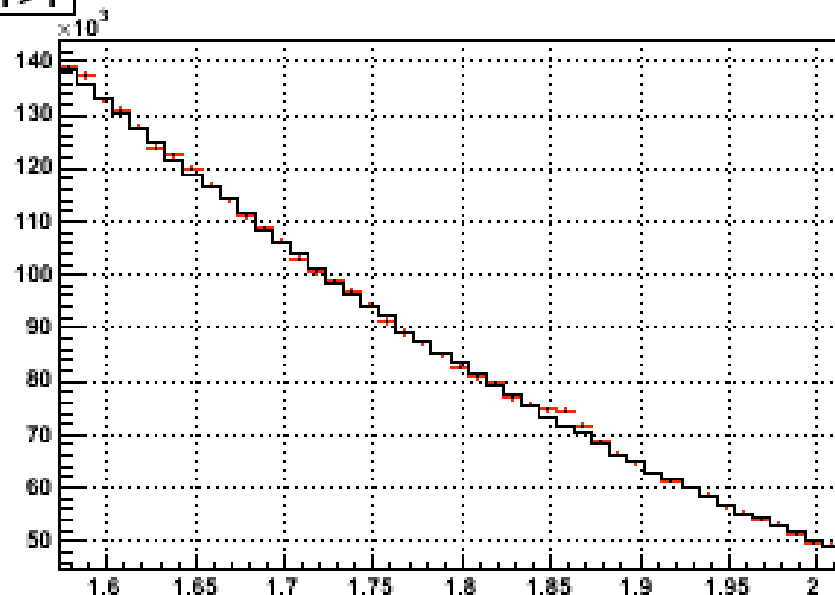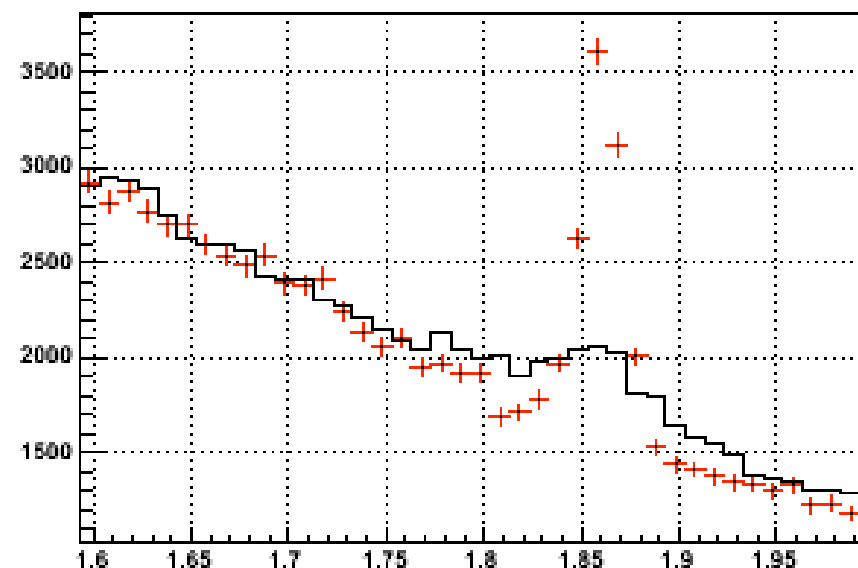
gaussian rotation : substraction (all files)
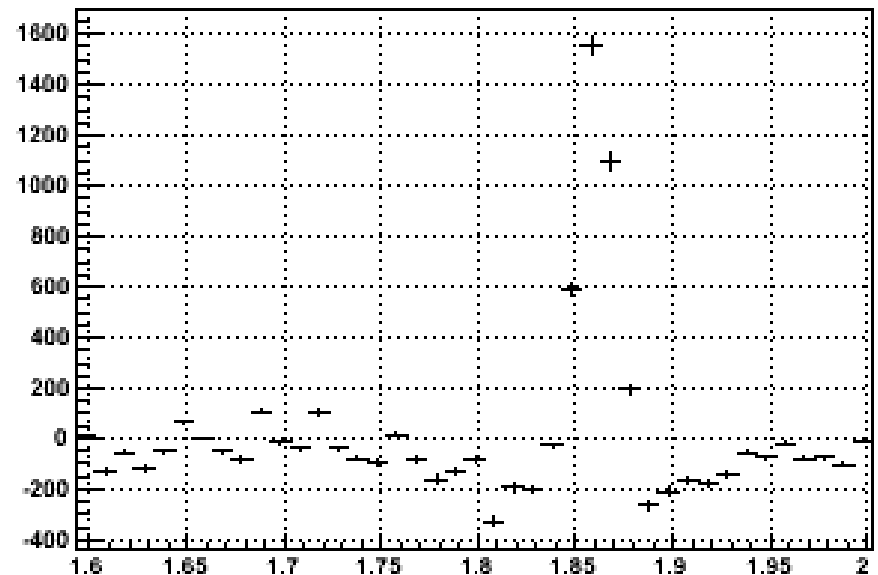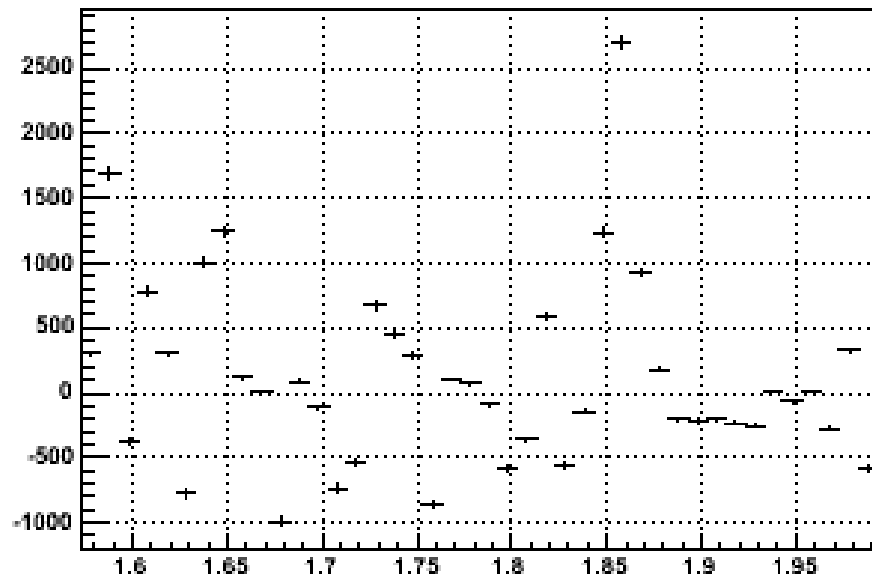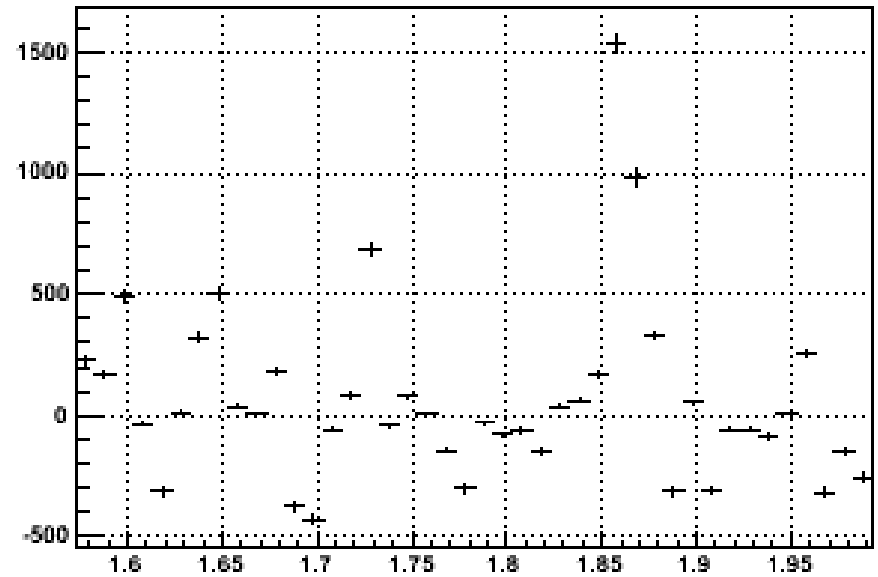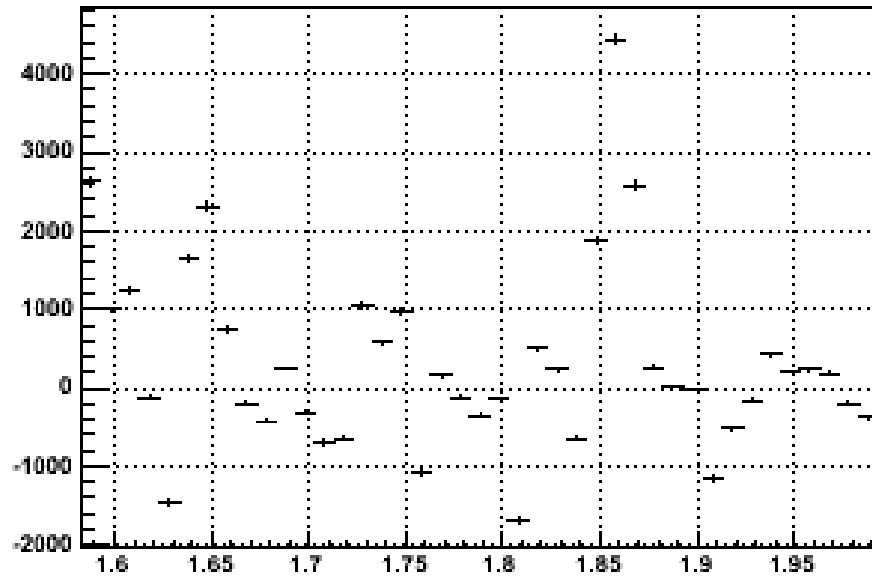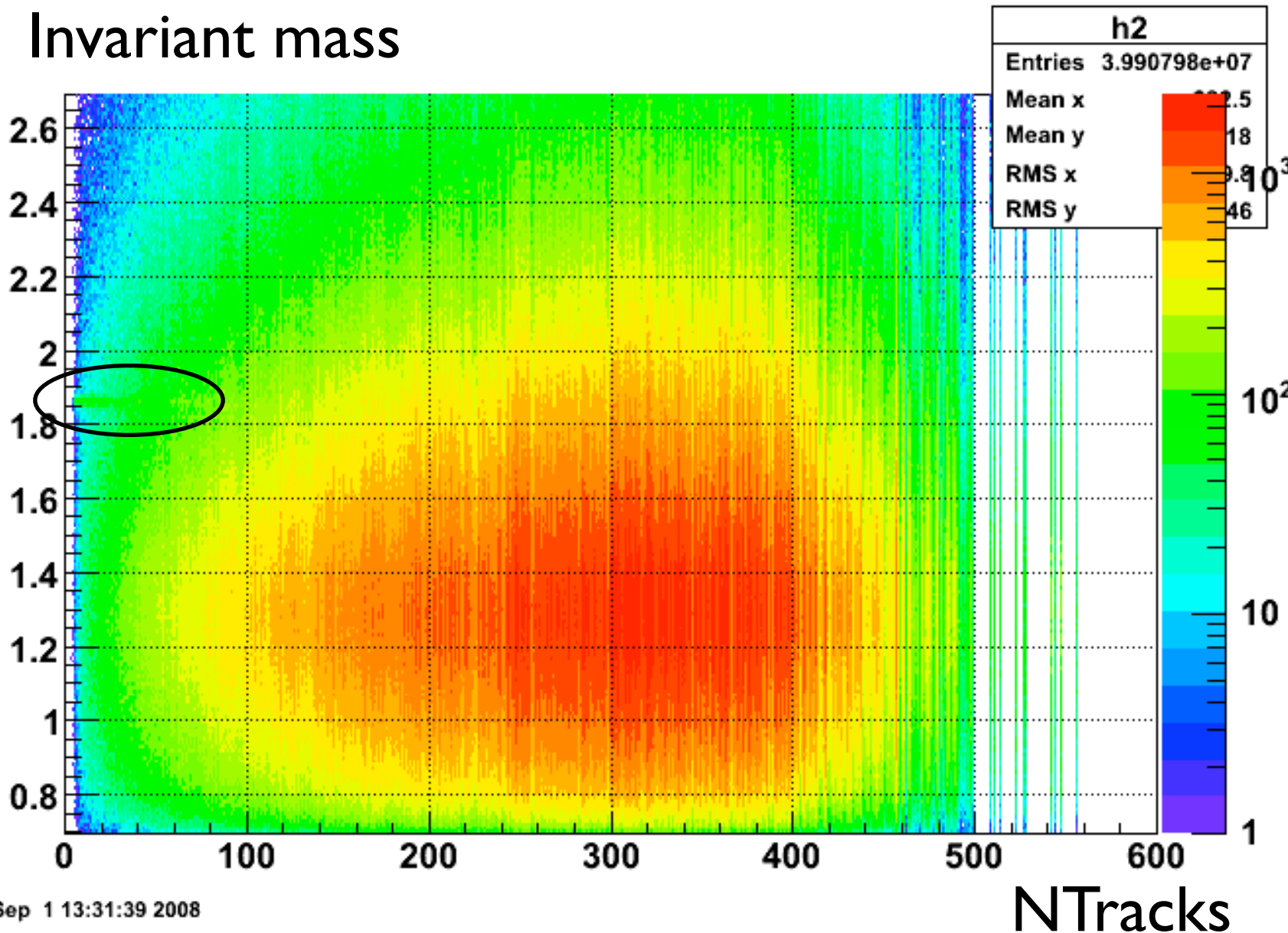
Number of tracks per event (mix data)

Invariant mass

We see a
small
correlation for
mass = 1.86
and the low
multiplicity

Mon Sep 1 13:31:39 2008

NTracks

D0 daughters momentum
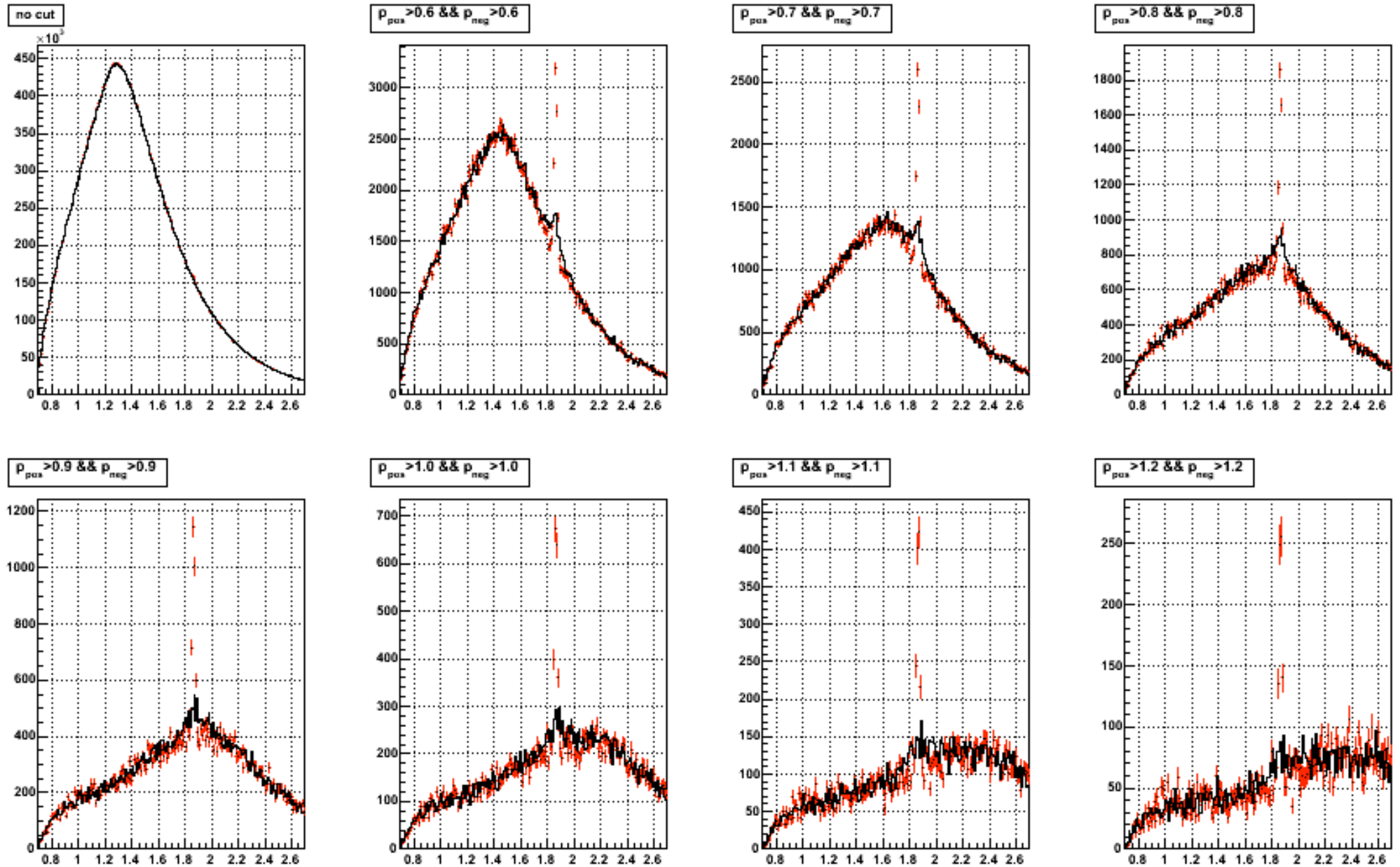
dEdx vs p (real data)

Cuts too strong ?

$|N\sigma_{kaons}| < 1$
$|N\sigma_{pions}| < 1$

h11	
Entries	1.724478e+07
Mean x	1.149
Mean y	2.635
RMS x	0.4698
RMS y	0.2756

dEdx

Mon Sep 1 14:02:27 2008

p [GeV/c]
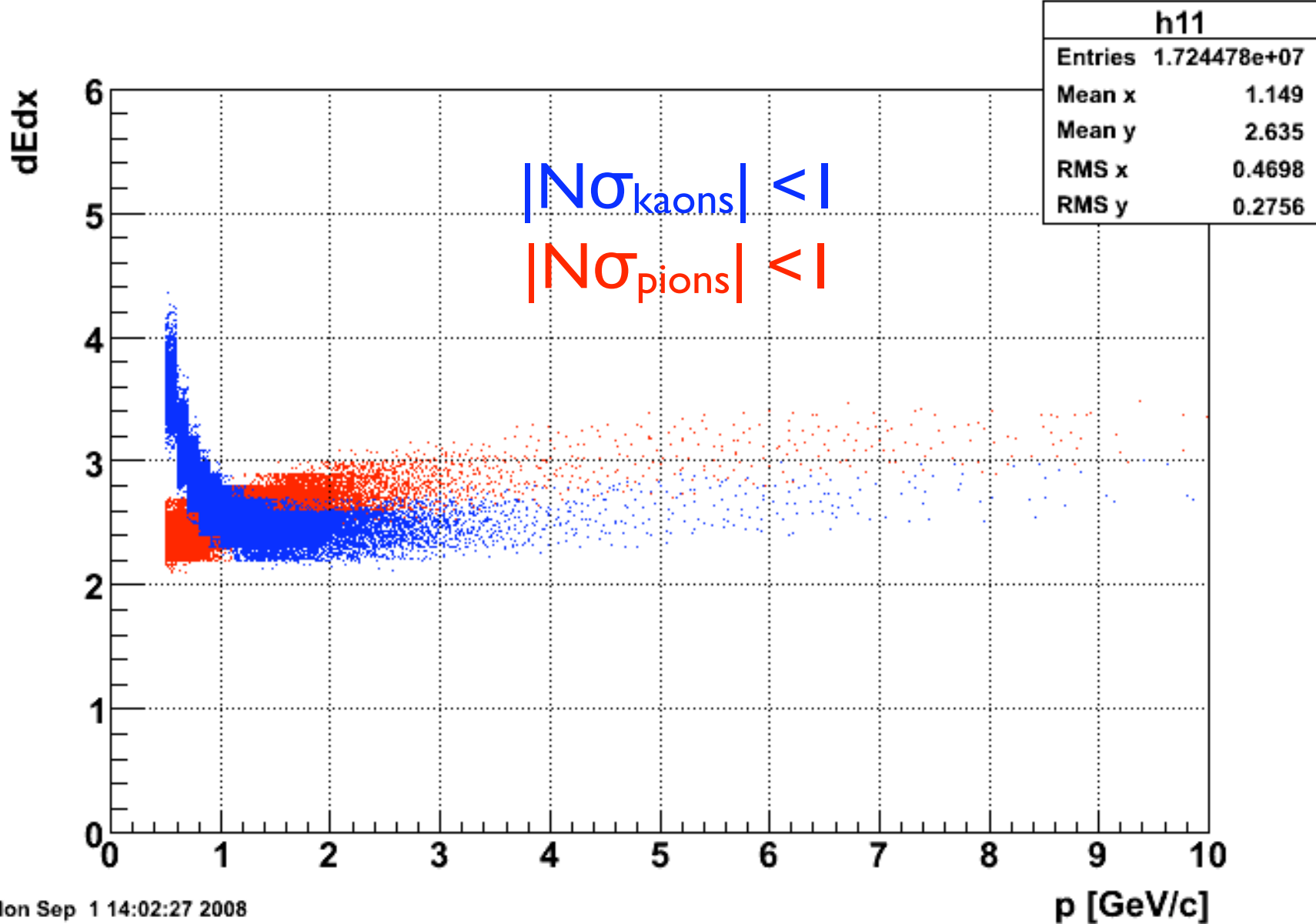
real data (180k events)
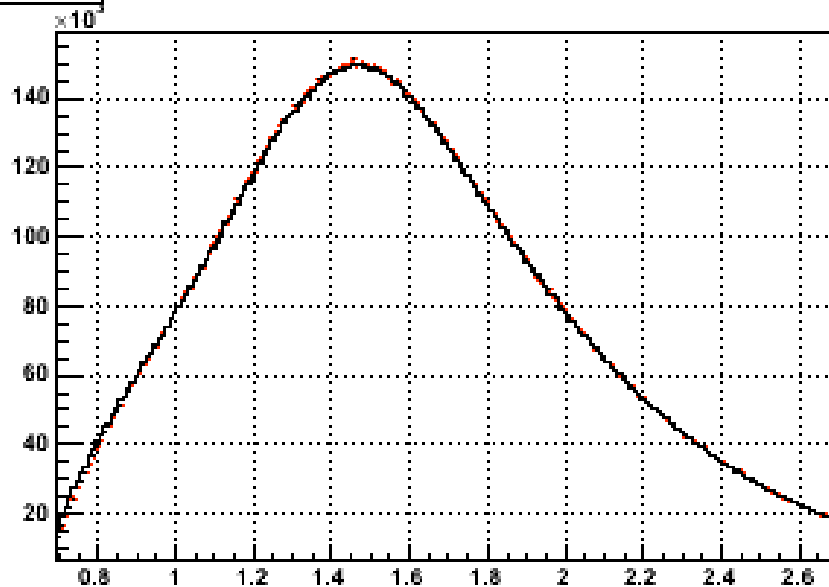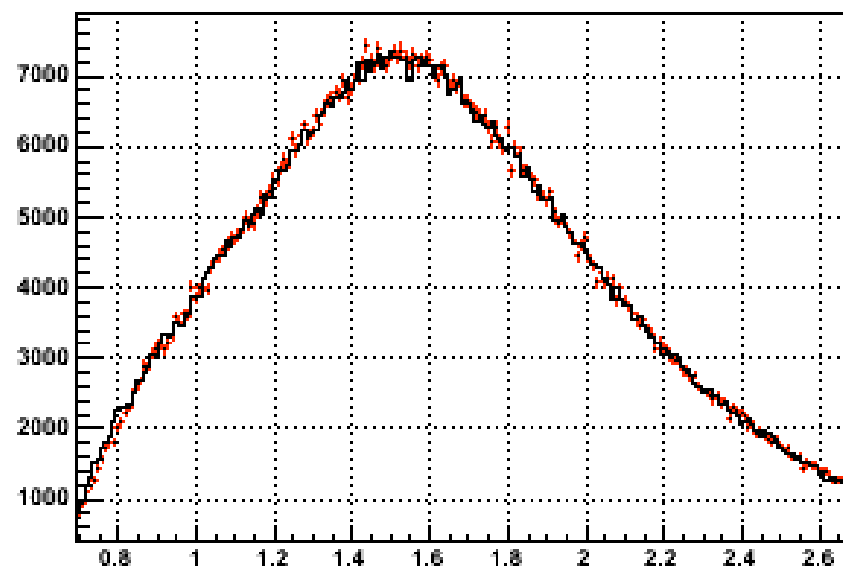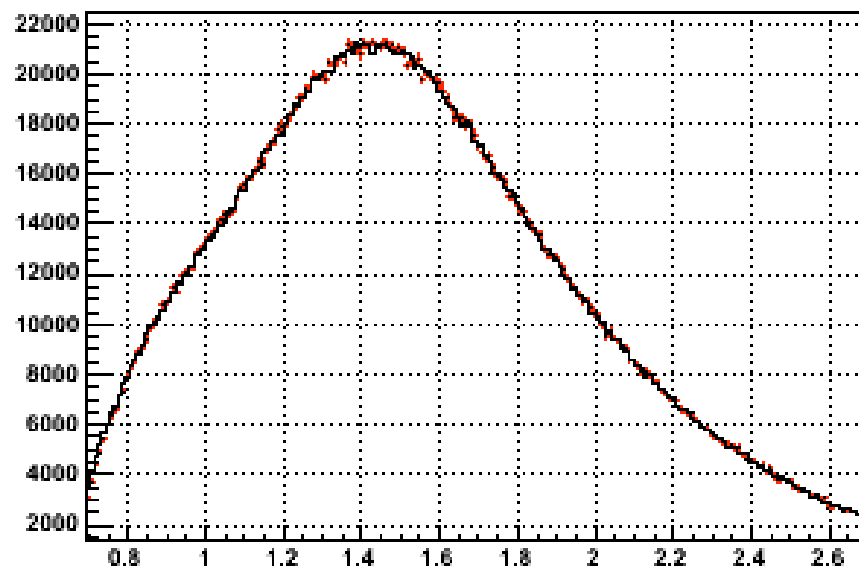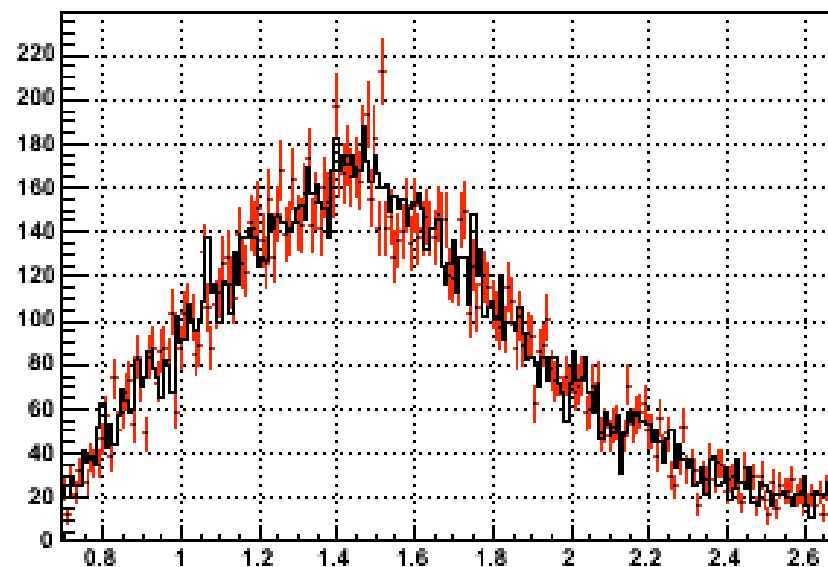
summary, to do

- Backgound rotation of π with a gaussian smear seems to work better

- dependence with the number of tracks per events

- dependence with the momentum of daughters

- cuts on nSigma of dEdx in real data ?